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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/678,290	10/03/2003	Roberto J. Rioja		3495

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EXAMINER	
MORILLO, JANELL COMBS	

ART UNIT	PAPER NUMBER
1793	

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11/15/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

Office Action Summary	**Application No.** 10/678,290	**Applicant(s)** RIOJA ET AL.	
	Examiner Janelle Combs-Morillo	**Art Unit** 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 October 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on October 9, 2007 has been entered.

Claim Interpretation

2. Previously amended claim 1 (claims submitted of 5/1/2007) stated "the strength/toughness relationship is positive for lithium addition to a given alloy", and further describes said relationship in the response filed 4/24/2007 p 7, etc. In the previous office action, the examiner interpreted said phase as follows: Ex. 1 and Fig. 5 show that both strength and toughness are improved (slope of the strength/toughness graph of Fig. 5 is positive & increasing) by virtue of (low levels) of lithium added to a given alloy until a critical level of Li is achieved (Fig. 5, Examples, and see also [0027]). The examiner agreed this relationship IS NOT TAUGHT BY THE PRIOR ART of Pickens'003. Rather, the prior art of Pickens US 5,255,003 specifically teaches increasing Li decreases fracture toughness (Fig. 2, see also Ex. H and O in Tables 2 and 3). However, newly amended claims are broadened, and now drawn to fracture toughness being at least maintained while strength is improved by virtue of the addition of Li, and compared to the same alloy without Li addition (slope of strength/ toughness graph is at least flat). The prior art is silent concerning the relationship of strength & toughness by virtue of the

addition of Li- and as compared to the same alloy without Li (it is not clear said results are unexpected, see further discussion below).

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-6, 8, 9, 18-21, 25, 26 are rejected under 35 U.S.C. 102(a) or (e) as being anticipated by Rioja (US 6,562,154).

Rioja'154 teaches an aluminum alloy plate comprising (in wt%):

3.56% Cu
0% Mn
1.36% Mg
0.10% Zr
0.06% Sc
0.31% Li
0.04% Fe
0.03% Si
balance aluminum

which falls within the presently claimed ranges of Cu, Mg, Li, Zn, Ag, grain refiner (cl.1-4, 6, 8, 9, 18-20, 25, 26). Though Rioja'154 does not specify that the strength and toughness are improved by virtue of said Li addition (cl. 1, 25, 26) or the fatigue crack growth resistance (cl.

25, 26), because Rioja'154 teaches an example within the presently claimed ranges, then substantially the same improvement/positive relationship in strength and toughness are expected to occur, as for the instant invention. Therefore, it is held that Rioja'154 anticipates the presently claimed invention.

Concerning the Cu content of claim 5, "about 3.6" is held to fall within the scope of 3.56% Cu taught by Rioja'154.

Concerning claim 21, Rioja'154 teaches said alloy is formed into a sheet product (examples, abstract, etc.).

Concerning claims 25 and 26, Rioja'154 teaches said alloy is formed into an aircraft product, such as aircraft fuselages (abstract).

The applied reference has a common inventors with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e), as well as 102(a). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131, see MPEP 706.02(a-b), etc.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1-15, and 18-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pickens (US 5,455,003A, hereinafter Pickens'003).

Pickens'003 teaches an aluminum alloy comprising (in weight%): 2.8-4.8% Cu, 0.4-1.5% Li, 0.2-1.0% Mg (column 23 lines 6-7), 0.01-1.0% at least one grain refiner selected from: Zr, Ti, Cr, Mn, Hf, V (column 23 lines 16-18), and further containing at least one of: up to 0.8% Ag or up to 1.0% Zn (column 23 lines 21-22), which substantially overlaps the presently claimed alloying ranges. Pickens'003 also teaches an example consisting of: 4.04% Cu, 0.6% Mg, 0.85% Li, 0.38% Ag, 0% Zn, 0.15% Zr, 0.03% Ti, balance aluminum (ex. Q in Table 2 column 6), which is very close to the alloying ranges of instant claims. Pickens teaches said alloy exhibits high strength and toughness and is used for structural aerospace components (column 1 lines 38-39).

Overlapping ranges have been held to be a prima facie case of obviousness, see MPEP § 2144.05. It would have been obvious to one of ordinary skill in the art to select any portion of the range, including the claimed range, from the broader range disclosed in the prior art, because the prior art finds that said composition in the entire disclosed range has a suitable utility. Because of the substantial overlap in alloying ranges, it is held that Pickens'003 has created a prima facie case of obviousness of the presently claimed invention.

Concerning the instant limitation of Cu and Mg are present in the alloy in a total amount below a solubility limit of the alloy, the examiner points out that the solubility limits of Cu and Mg are based on alloy composition. Because Pickens'003 teaches alloying ranges within the presently claimed ranges, it is held that the alloy taught by Pickens'003 inherently teaches an amounts of Cu and Mg below a solubility limit of the alloy, substantially as presently claimed.

Concerning the amended limitation of fracture toughness being at least maintained while strength is improved by virtue of the addition of Li, and compared to the same alloy without Li addition (slope of strength/ toughness graph is at least flat)- the prior art is silent concerning the relationship of strength & toughness by virtue of the addition of Li- and as compared to the same alloy without Li.

Though Pickens does not specify a) relationship of strength & toughness by virtue of the addition of Li- and as compared to the same alloy without Li or b) the fatigue crack growth resistance (cl. 25), because the alloy taught by Pickens substantially overlaps the instant alloy composition, then substantially the same properties, such as fatigue crack growth resistance and toughness, are expected to occur. Where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). "When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not." *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). Therefore, if the prior art teaches the identical chemical structure, the properties applicant discloses and/or claims are necessarily present. The prima facie case can be rebutted by evidence showing that the prior art products do not necessarily possess the characteristics of the claimed product. In re Best, 562 F.2d at 1255, 195 USPQ at 433. See also Titanium Metals Corp. v. Banner, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985), see MPEP 2112.01. Therefore, it is held that Pickens'003 has created a prima facie case of obviousness of the presently claimed invention.

Concerning dependent claims 8 and 9, the amounts of Cu and Mg taught by Pickens'003 in example Q, meet said equations. More specifically, for instant cl. 8, the right side of the equation for Mg=0.6 is 5.65. For instant cl. 9, the right side of the equation is 4.5, and 4.04< 5.65, and 4.04< 4.5.

Concerning dependent claims 21-24, which mention said alloy is in the form of a sheet, plate, extrusion, or forging (respectively), Pickens'003 teaches that said alloy can be worked into a sheet (column 23 line 50), plate (column 23 line 48), extrusion (column 23 line 46), or forging (column 7 line 4).

7. Claims 16, 17, 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pickens'003 in view of Rioja et al (US 5,137,686 A). Pickens'003 is discussed above.

Pickens'003 does not mention 0.1-2% Si or 0.3-1% Si is present in said alloy. However, Rioja teaches that 0.5wt% max. Si (column 13 line 31) is typically present in substantially similar Al-Cu-Li-Mg alloys (that overlap ranges in instant cl. 1, etc.), which broadly overlaps the presently claimed ranges of Si. It would have been obvious to have selected a range of Si of 0.5wt% max. (as an impurity or alloying addition), as taught by Rioja in Pickens' aluminum alloy, because Rioja teaches that said range of Si is suitable limit for substantially similar Al-Cu-Li-Mg alloys that exhibit high strength, corrosion resistance, and fracture toughness (column 13 line 28).

Pickens teaches said alloy is used for structural aerospace components (column 1 lines 38-39). Pickens does not teach forming said alloy into the presently claimed specific aerospace components. However, Rioja, who is drawn to a similar Al-Cu-Li-Mg alloy, teaches that Al-Cu-Li-Mg alloys can be used for wing spars, wing panels, or body panels (column 5 lines 3-6). It would have been obvious to one of ordinary skill in the art to form the alloy taught by Pickens into a wing or body panel, etc. as taught by Rioja, because both Pickens and Rioja are drawn to similar Al-Cu-Li-Mg alloys used in aerospace applications, and Pickens teaches said alloy is suitable for high strength and toughness applications (column 1 lines 38-40).

8. Claims 7, 10-17, 22-24 are rejected under 35 U.S.C. 103(a) as being obvious over Rioja'154.

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date as well as publication date of the reference, it constitutes prior art under 35 U.S.C. 102(a) or (e).

Rioja'154 is discussed in paragraphs above. Rioja'154 broadly teaches: 3.2-3.8% Cu, 0.3-0.7% Mn, 1.0-1.6% Mg, 0.09-0.12% Zr, 0.25-0.75% Li (column 5 lines 10-13) and further containing up to 1% Zn, Ag, and Si (column 5 lines 15-18), which overlaps the presently claimed ranges of Mg (cl 7, 10-17).

Overlapping ranges have been held to be a prima facie case of obviousness, see MPEP § 2144.05. It would have been obvious to one of ordinary skill in the art to select any portion of the range, including the claimed range, from the broader range disclosed in the prior art, because the prior art finds that said composition in the entire disclosed range has a suitable utility. Because Rioja'154 teaches an overlapping alloy composition, it is held that Rioja'154 has created a prima facie case of obviousness of the presently claimed invention.

Concerning dependent claims 22-24, though Rioja'154 does not specify working said alloy by processes of extrusion or forging (cl. 23, 24) or forming into a plate (cl. 22), it would have been obvious to one of ordinary skill in the art to form a thick product, such as a plate, out of the Al-Cu alloy taught by Rioja'154 depending on the desired application (the thickness is held to be a result effective variable). Concerning the method of working said product, all of rolling, forging, and extrusion are well-known processes of working aluminum alloys. It would have been obvious to one of ordinary skill in the art to form the alloy taught by Rioja'154 by forging or extrusion, because said processes are capable of forming high strength Al-Cu alloy products.

Alternatively, with regard to the process steps, it is well settled that a product-by-process claim defines a product, and that when the prior art discloses a product substantially the same as that being claimed, differing only in the manner by which it is made, the burden falls to applicant to show that any process steps associated therewith result in a product materially different from that disclosed in the prior art. See MPEP 2113, *In re Brown* (173 USPQ 685) and *In re Fessman* (180 USPQ 524) *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

Double Patenting

9. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

10. Claims 1-26 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-103 of U.S. Patent No. 6,562,154. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of US'154 teach a Al-Cu alloy for rolled sheet product substantially overlapping the instantly claimed alloying ranges (see US'154 at cl. 7, 8 in particular). US'154 at claims 86-103 mention aircraft fuselages can be formed from said Al-Cu alloy.

Response to Amendment

11. In the response filed October 9, 2007, applicant amended claims 1, 18, 19, 26. The examiner agrees that no new matter has been added.

12. The examiner disagrees that the instant claims are fully supported by parent application 09/104123. At least the Cu range of instant claim 1 of about 3-5% Cu, is not found in the parent application, which mentions up to about 4.5% Cu is present (page 2, line 27, claim 1, etc). Therefore, the rejection in view of Rioja'154 has not been overcome.

13. Additionally, the ODP rejection has not been overcome, as the Terminal Disclaimer filed on October 9, 2007 does not contain the signature of an attorney of record.

14. As discussed above, the prior art is silent concerning the relationship of strength & toughness by virtue of the addition of Li- and as compared to the same alloy without Li (and it is not clear said results are unexpected). There is no clear nexus between this limitation and the

unexpected results (see discussion "Final Rejection" mailed 7/9/2007). Though it is clear that the prior art does not teach a positive relationship/slope of fracture toughness vs. strength relationship for the addition of (low) amounts of Li (see response to Amendment paragraph 10 of "Final Rejection" mailed 7/9/2007), and that this positive relationship is unexpected, it is not clear that the prior art does not teach the amended improvement and as compared to an alloy with 0% Li.

15. Applicant submits that "Fracture Toughness" is defined per ASTM standard, and "Strength" is defined as tensile yield strength, per ASTM standard. The examiner was not able to obtain copies of these standards, and requests applicant provide said copies.

Conclusion

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janelle Combs-Morillo whose telephone number is (571) 272-1240. The examiner can normally be reached on 8:30 am- 6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JCM
November 13, 2007

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